

REMARKS

Claims 1, 3, 4 and 7-12, 14, 16 and 18 are pending in the above application.

The Office Action dated August 20, 2007, has been received and carefully reviewed. Each issue raised in that Office Action is addressed below, and reconsideration and allowance of the pending claims is respectfully requested in view of the above amendments and the following remarks.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Osako. By the above amendment, limitations from claims 2, 5 and 6 have been added to claim 1. Specifically, claim 1 now recites synchronization means and distinguishing means for distinguishing clock signals from time-divided signals, the distinguishing means including means for varying one or more electric currents flowing at the light-emitting element so as to impart one or more differences to one or more optical intensities in one or more clock synchronization signals and one or more time-divided signals superimposed on the clock signals. Osako does not show or suggest at least such distinguishing means as now claimed, and claim 1 is submitted to be allowable over Osako for at least this reason.

It is also respectfully submitted that claim 1 patentably distinguishes over Osako in view of Reinhold (the rejection raised in connection with claim 6). Osako teaches, in all embodiments, that a photodiode for sending timing pulses must be used in connection with a photodiode for sending data signals. Changing the optical intensities of clock signals and data signals is not suggested. To address this deficiency, the examiner cites Reinhold which teaches that clock signals and data signals can be sent by a single photodiode. However, it is respectfully submitted that neither Osako nor Reinhold shows or suggests means for varying currents to vary optical intensities as recited in original claim 6 or amended claim 1. Reinhold is silent as to how clock and data signals are distinguished. Therefore combining these references in no manner suggests the invention of claim 6.

Moreover, it is respectfully submitted that the Office Action has not conducted the analysis required by MPEP 2181-2183 to show that the means-plus-function limitations of the claims can be found in the prior art. As provided in MPEP 2182: "The first step in construing a means-plus-function claim limitation is to define the particular function of the claim limitation.

... The next step in construing a means-plus-function claim limitation is to look to the specification and identify the corresponding structure for that function.” Section 2183 of the MPEP then provides that if “the examiner finds that a prior art element (A) performs the function specified in the claim, (B) is not excluded by any explicit definition provided in the specification for an equivalent, and (C) is an equivalent of the means- (or step-) plus-function limitation, the examiner should provide an explanation and rationale in the Office action as to why the prior art element is an equivalent.” This has not been done in the present case, and a prima facie case of obviousness has not been presented. Reconsideration and allowance of claim 1 is respectfully requested for at least these reasons.

Claims 3 and 4 depend from claim 1 and are submitted to be allowable for at least the same reasons as claim 1.

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Osako. By the above amendment, claim 12 has been amended to include limitations of claims 13, 15 and 17. As amended, claim 12 recites a multichannel photocoupler that includes, inter alia, a clock circuit generating clock signals, a first light-emitting element communicating time-divided signals from an input side to a first light-receiving element on the output side at a first optical intensity, and a second light-emitting element communicating clock signals to a second light-receiving element on the output side at a second optical intensity different than the first optical intensity. In addition, the clock signals are superimposed on the time-divided signals. Osako teaches separate photocouplers 312 and 318. Photocoupler 312 includes an optical fiber 308 and photocoupler 318 includes a separate optical fiber (unnumbered); these separate fibers do not appear to allow the superposition of clock and time-divided signals as now recited in claim 12. Claim 12 as amended distinguishes over Osako and the other art of record for at least this reason.

Claim 14 depends from claim 12 and is submitted to be allowable for at least the same reasons as claim 12.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osako in view of Slater and Schimpf. The Office Action acknowledges that Osako does not show or suggest level coupling means in a multichannel photocoupler as claimed. However, it is stated that the concept of pulse amplitude modulation is well known in the art, as shown by Slater and Schimpf,

and that therefore it would have been obvious to use pulse amplitude modulation in Osako in order to “relax the bandwidth requirement.”

It is not clear from the record whether this rejection is intended to be 1) a rejection based on Osako in view of what is “well known in the art,” with Slater and Schimpf being used as evidence of what is well known in the art or 2) a rejection based on Osako in view of Slater and Schimpf. As discussed below, however, claim 7 is submitted to be allowable over the art of record whichever one of these rejections is intended. To clarify the record, it is respectfully requested that the examiner explain more clearly how claim 7 is being rejected if the rejection of claim 7 is not withdrawn.

The rejection appears to indicate that, because pulse amplitude modulation is well known in the art, it would have been obvious to modify Osako to use pulse amplitude modulation in some manner. The reason for modifying Osako in this manner would be to relax bandwidth requirements. Pulses in Osako are applied to a drive circuit which in turn controls a photodiode. The structure of Osako’s drive circuit is not disclosed in Osako. It is therefore not clear from Osako what would happen if the amplitude of pulses applied to the drive circuit were varied. If the pulses, for example, merely control the state of a transistor in the drive circuit to control power to the photodiode, varying the amplitude of pulses input to the drive circuit would not affect the optical intensity of the light output by the photodiode. Moreover, since Osako always uses separate photodiodes for data and for clock signals, it is not clear why one skilled in the art would be motivated to change the optical intensities of these light signals. Furthermore, Osako is not directed to a multiplexing application, and there appears to be no need to “relax bandwidth requirements” in Osako. It is therefore respectfully submitted that the proposed change to Osako would not necessarily affect the optical intensities generated by Osako’s photodiodes and furthermore, that one skilled in the art would have no reason to make any changes to Osako based on the concept of pulse amplitude modulation.

Furthermore, the Office Action has not conducted the analysis required by MPEP 2181-2183 to show that the use of “level coupling means” as recited in claim 7 would have been obvious. The requirements for supporting a rejection of a means-plus-function claim are noted above in connection with the rejection of claim 1. Even if it is assumed that the concept of pulse

amplitude modulation is known, this does not establish that the claimed level coupling means are well known. For this reason as well, a prima facie case of obviousness has not been presented in connection with claim 7, and claim 7 is submitted to be allowable over the art of record.

Claim 7 also may be rejected based on a combination of Osako, Slater and Schimpf. If this is the intended rejection, however, it is respectfully submitted that Slater and Schimpf are non-analogous art that cannot properly be combined with Osako to support this rejection. As provided by MPEP 2141.01(a), quoting, *In re Oetiker*, 24 U.S.P.Q. 2d 1443, 1445 (Fed. Cir. 1992), "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." Moreover, the reasonably pertinent prong of the test involves a determination as to whether the subject matter of the reference would have logically commended itself to the attention of an inventor considering the problem at hand. *In re Clay*, 23 U.S.P.Q. 2d 1058, 1060-61 (Fed. Cir. 1992). If these prongs are not satisfied, the reference is non-analogous and cannot properly be applied.

Slater is directed to an underwater telemetry system. The claimed invention is directed to an optical photocoupler. Underwater telemetry systems are not in the field of endeavor of multichannel photocouplers. Thus, Slater fails to satisfy the first prong of the *Oetiker* test. Moreover, one addressing problems of the size of multichannel photocouplers would not logically look to the underwater telemetry arts for possible solutions to the problem being addressed. Slater therefore fails to satisfy this second prong of the *Oetiker* test, and is therefore non-analogous art.

Schimpf is also submitted to be non-analogous art. Schimpf is directed to a multiplexing system for transmitting multiple video signals over a single transmission channel. Multiplexing video signals is not in the same field of endeavor as improved multichannel photocouplers. Moreover, one attempting to address the problem of the size of multichannel photocouplers would not logically look to the video signal multiplexing arts for possible solutions. Schimpf also fails both the first and second prongs of the *Oetiker* test for establishing analogy, and Schimpf is therefore submitted to be non-analogous art. Claim 7 is submitted to be allowable over the art of record for this reason as well.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osako in view of what is well known in the art and/or in view of Slater and Schimpf. As discussed above in connection with claim 7, the fact that the concept of pulse amplitude modulation is known in no manner suggests any modification to Osako which would result in the claimed invention. Slater and Schimpf are also submitted to be non-analogous art. Claim 18 is therefore submitted to be allowable over the art of record for at least these reasons, as discussed in greater detail above in connection with claim 7.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osako and Slater and Schimpf and further in view of Geller. As discussed above in connection with claim 7, Slater and Schimpf are non-analogous art. Moreover, Geller does not address the other shortcomings of Osaka discussed above in connection with claim 7. Claim 8 is therefore submitted to be allowable at least based on its dependency from claim 7.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osako and Reinhold and Slater and Schimpf and Geller and further in view of Noda. It is respectfully submitted that Slater and Schimpf are non-analogous prior art that cannot properly be used in this rejection. Moreover, claims 9-11 depend from claim 7, and Noda does not address the shortcomings of Osako discussed above in connection with claim 7. Claims 9-11 are therefore submitted to be allowable for at least the same reasons as claim 7.

CONCLUSION

Each issue raised in the Office Action dated August 20, 2007, has been addressed, and it is respectfully submitted that claims 1, 3, 4 and 7-12, 14, 16 and 18 are in condition for allowance. Wherefore, reconsideration and allowance of these claims is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the examiner is respectfully requested to contact Scott Wakeman (Reg. No. 37,750) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies,

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to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

Dated: November 16, 2007

Respectfully submitted,

By  # 37.750

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